An Essay on Kine Pock

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Ovid.

+ Inoculation, was not I believe, practiced in Europe, before the return of the celebrated Lady Mary Wortley Montague, from Constantinople about the year 1720.—— The favours lavished upon the elder Dimsdale by the munificent Catharine the second, furnish a painted example of the value attached to it.

Introduction.

The subject of the ensuing essay, early solicited my attention. My opportunities of witnessing the disease, of which it treats, have been numerous; & the experience of each successive day, served to make its importance more manifest. Previously to the discovery of this wonderful Prophylactic, the Small Pox was one of the broadest avenues, to the grave: it is already, divested of almost all its terrors; & it is presumable, that in a short time, it will be known only by name, among us.

To appreciate properly, the advantages, we reap from the time Pock, it is necessary to be acquainted with the extent, of the mortality, induced by the Small Pox. In the City of London alone, the number of deaths from it was truly alarming. Even Inoculation, was found to be inadequate, to arrest its ravages. So far, indeed was this from being the case, that Baron Dimsdale, has proved by calculations, of unquestionable accuracy, that its victims have been more numerous, since the general practice of Inoculation, than before its introduction. Very few of the physicians in Europe, & none in this country, of any pretensions to character, continue to practice Inoculation. The superiority of Vaccination, is so very obvious, that I am astonished that any should prefer inoculation — the following are its principle advantages.

1st. It is admissible at all seasons & ages. I have known it performed a few hours after birth.

2d. Neither medicines nor confinement, are necessary, in 99 cases out of 100.

3 It is by no means a painful, & very seldom, a dangerous disease. Only one, well authenticated case can be adduced of its fatality; which occurred to Dr.

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4 It never produces deformity. & 5 Is a more certain preventive, than Small Pox.

The reverse of all this is true with regard to Small Pox. The mass of evidence that has been brought forward, to prove its benign operation, has almost silenced opposition. Some few however still continue, to express their hostility to it. Among whom, a certain Smyth, has rendered himself conspicuous, for hardihood of assertion, & virulence of abuse. Little better could be expected, from the author of "A tour in America". Several others, have blazed for a moment in their transit to oblivion. But I was very much chagrined, to observe, that Dr. Morely, who is equally celebrated for acute investigations, & profound erudition, should suffer his name, to be inscribed on the list of its adversaries. Such however, is the fact, & we can only ascribe this derelictions, from his accustomed correctness, to that eccentricity, which sometimes unites to genius.-

It seems that the disease, of which I am now about to treat, has been familiar, for a long time, to the farmers & graziers of England. They observed that a certain species of sores, that occasionally appeared, upon the hands & arms of milkers, prevented their taking the Small Pox. It seem to me very singular, that this important fact should have been permitted, to lie dormant so long; and that some one, to whom it was familiar, did not suggest a proper application of it. This was reserved for Dr. Jenner; to whom it has proved a source of opulence, & ~~wealth~~ reputation, he perhaps but little anticipated. He proved that matter taken from these ulcers, on the udders of cows, was fully competent, to secure the Human constitution, from the destructive operation of the Small Pox. I have previously stated, that this celebrated physician, has no pretensions to the discovery, of the Vaccine disease; it is far from my intention, to detract from the celebrity, he has so justly acquired. much is

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is certainly due, to the ingenuity, perseverance, & intrepidity, which he evinced, in developing, illustrating and maintaining it, in opposition to a host of adversaries. He was doubtless aware, of the obloquy, that would attack to his character, from a failure. He would, probably have been ridiculed, for his credulity, by those very persons, who are now most clamorous, in his praise. Doctr. Jenner, however, is not the only one, entitled to our thanks for braving the consequences of a failure. Professor Coxe displayed equal boldness. He for a long time stood alone, and opposed & ultimately vanquished, by facts and experiments, the prejudices & scepticism of his countrymen.

I am sensible that I ought to apologise for the very imperfect state, in which I venture to exhibit this, my first attempt at compositions. It might very reasonably be expected, that I should endeavour to confirm, by experiments, the opinions I have ventured to suggest. Such was my intention; but I found upon investigation, that, several which I had contemplated were already before the Public. — Unfortunately, I could not experiment upon myself; since it very rarely happens, that this disease, can be induced twice, in the same person; & the impropriety of involving the health, perhaps the existence, of others, in experiments, the issue of which could not be foretold with certainty, was too forcible to be withstood. I was particularly anxious to confirm or disprove the experiments of Doctor Carpenter of Lancaster, upon the cow. The difficulty of making the attempt, must be my excuse, for its omissions. It will be perceived that, I have assumed the fact as correct; as far as I know there is no reason to doubt his relation; it accords, very completely with the view of the disease, that I have ventured to take, & is in other respects strictly consonant to probability.

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If further investigation shall shew, that the opinion I have adopted is incorrect, I shall cheerfully renounce it. I am very far from being wedded, to this, or any other opinion. My sole object is the attainment of truth: & I shall esteem myself particularly obliged to any one, who will point out my deviation from it. I have endeavoured, to deal candidly, & impartially, with those opinions, which I have had occasion to touch upon. If I have, inadvertently, neglected to do this, it must be imputed to omission, & not to intention.

My youth & inexperience, precluded deep research; superadded to which, the extreme shortness of the time, unavoidably, allotted to the preparation of this essay, in the midst of pursuits more immediately interesting, has contributed to render it extremely crude & imperfect.

Such as it is — "with all its imperfections on its head"; I submit it — to Clemency rather than Justice. —

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The origin of Kine Pock is involved in considerable obscurity. As Dr. Jenner has given a very minute, & apparently, a very accurate, account of it, I shall transcribe his words; they are as follows, "There is a disease, to which the horse, from his state of domestication is frequently subject. The Farriers have termed it the Grease. It is an inflammation and swelling of the heel, accompanied at its commencement, with small cracks or fissures, from which issues, a limpid fluid, possessing properties of a very peculiar kind. This fluid seems capable of generating a disease in the human body (after it has undergone a modification I shall presently speak of) which bears so strong a resemblance to Small Pox, that I think it highly probable it may be the source of that disease."

In this County a great many cows are kept, and the office of milking is performed indiscriminately, by the men and maid servants. One of the former having been appointed to apply dressings to the heel of the horse affected with the malady, I have mentioned, & not paying due regard to cleanliness, incautiously bears his part in milking the cows, with some part of the infectious matter still adhering to his fingers. When this is the case, it frequently happens, that a disease is communicated to the cows, and from the cows to the dairy maids, which spreads through the farm, until most of the cattle & domestics feel its unpleasant consequences."

Some have doubted the correctness of this opinion of Dr. Jenner. The following, are perhaps, the most prominent objections to it.

1st. The matter of grease will not secure the system, from the attack of Small Pox. It very rarely ulcerates, or even inflames, the hands of those, employed in dressing the hoofs of horses, labouring under this affection: which might reasonably be expected, if it were endowed with the activity

+ See Coe's Practical Observation of Kine Pock page 13.

ve celerity ascribed to it.

2d. Dr. Woodville has proved by experiment, as far as negative experiments, will go, that the vaccine disease, cannot be induced, in the teats of cows, by inoculation with the matter of Grease. I am aware that a veterinary surgeon, is said to have actually succeeded, in producing this disease artificially, in a cow, by removing a scab from the teat, and applying the recent, blackish, matter of Grease, to the abraded surface of the sore". This experiment, in my opinion, proves very little; attempts were doubtly made in every possible form, & succeeded only in one instance. Its being the only experiment, upon record, should induce us to view it with caution, and distrust. Milkers do not take this trouble: the dry matter of Grease, is applied to the sound & uninjured cuticle, of a cow — it is even unnecessary to abrade the skin: and inflammation and pustules, are the consequence. Notwithstanding the facility, with which it is induced accidentally; — when experiments, are made for the express purpose, of settling the question; when the Inoculation is performed by operators, of unquestionable skill, & every other precaution taken to ensure success, one case only, can be adduced, of its accomplishment. It certainly behoves us to be extremely cautious, of granting our assent, to a single experiment, involving a result, of such magnitude; even if made, with every attention. Our laws deem every person innocent, till they are proved to be guilty. In like manner, it is most conformable to that circumspection, which should govern our decisions, to take nothing for granted. This experiment seems to have been made by a veterinary surgeon, who perhaps did not bestow, that care & attention upon it, that is essentially necessary, in investigations of this kind. Would it not be more reasonable, to infer, that he was mistaken?

3. It is the only disease, produced in this circuitous manner.

An opinion, has been advanced by some, that the Vaccine disease, is a modification of small Pox. Dr. Adams, I believe, is of this number. Several very weighty considerations, oppose the adoption of this opinion: (the

+ Dr. Woodville asserts that the vaccine, is sometimes attended with eruption
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& I confess that the former, is in my opinion the most specious of the two.
The following facts and arguments, might be urged in support of it.
1st. There is a strong resemblance in the external appearance, of the two diseases.
They attain their acme, about the 9th day; they are both, eruptive, & constitutional diseases.
2d. They reciprocally prevent each other; to this there are some few exceptions, but as a general rule, it may be admitted.
3d. They both may exist, at the same time, in the same constitution.
This opinion will scarcely be controverted. It must have occurred to every one, whose experience with the time Pock, has been at all considerable.
Several facts have occurred within the sphere of my own observation, that completely establish it. They are so decisive, that I must be pardoned for briefly mentioning them.
Captain C— was confined in the Gaol at Baltimore in August last. At this time, several criminals & runaway negroes, who were lodged in a room, immediately beneath the apartment, he occupied, were ill with Small Pox. He was immediately vaccinated, with recent matter, and the operation happily succeeded in both arms. The pustules progressed so regularly, & every other appearance, continued so favourable, that sanguine hopes were entertained, of his exemption from Small Pox. About the 10th day, however, when the areola was perfected, he was seized with the eruptive fever. I was somewhat alarmed at his situation, as the weather was intensely warm, & he was standingly robust & athletic. I experienced at the same time, an ardent curiosity, to witness the effect of this collision, upon the two diseases. He was bled & purged, & the usual remedies advised, to allay inordinate action.
Very little alteration was perceptible, in the vaccine pustules, although I watched their progress with the utmost solicitude. On the other hand, the influence of the vaccine upon the variolous disease, was too obvious to be overlooked. The crop of pustules, was very moderate, & the fever, after the eruption made its appearance, comparatively inconsiderable, although, from the causes I have specified, I had apprehended a violent &

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I have already mentioned, that ~~a~~ ~~several~~ runaway negroes, were confined at the same time; a majority of whom, were still susceptible of small Pox. Of these, five or six imbibed the infection, notwithstanding they were vaccinated. The variolous disease, appeared at various stages of the vaccine pustule; & in every instance, its violence was proportioned to the maturity of the kine Pock. Thus when the small Pox supervened on the 5th day, from the insertion of the vaccine matter, it was accompanied with considerable fever, & other symptoms of an unpleasant nature; but when its accession was protracted, till the fifteenth day, as it was in one instance, the eruption, fever &c were extremely mild, & might have been mistaken, by a careless examiner, for Chicken Pox. The duration of the eruptions, however, & other circumstances, sufficiently indicated its nature.

These cases appear to me, of considerable importance, inasmuch as they prove beyond controversy, that the two diseases, may exist at the same time, in the same constitution. Professor Cope furnishes an example of a similar nature.

A very weighty argument in favour of the identity of the two diseases, is deducable from this fact. Mr. John Hunter long since, taught the impossibility, of two actions of a dissimilar nature, existing simultaneously in the same part. Some of the laws of sensation, & of Epidemics, are bottomed on this axiom. Dr. Rush very emphatically remarks, that he could as readily conceive, that a horse could trot & walk at the same time, as that two actions of a different nature, could subsist together in the same part. Numerous facts might be adduced, to prove the correctness of this opinion. A case much in point, may be found in Duncan's Annals of Medicine; in which Typhus fever prevailed over Measles: after the former subsided (& if my recollection serves me, it continued 20 days) the Measles resumed their course, & terminated regularly. A similar case is also recorded in Coxe's Medical Museum.

+ The famous experiment of Mr. John Hunter to prove the identity of Gonorrhoea & Syphilis must be familiar to every one. It demonstrates the immense importance of a single experiment, judiciously conducted, fairly & impartially detailed; since this of Mr. Hunter was deemed sufficient to establish a question of Pathology, as warmly contested perhaps as any other.

‡ vide Practical observations on the Cow Pock p.p. 14 + 15

4th. It has been proved by experiment, that variolous matter will produce the vaccine disease in a cow. The correctness of this statement, has been questioned. It has been contended, that cows are insensible of the operation, of the variolous virus, & that if a sore was produced, it would not exhibit the usual marks, that characterize Cow pock. A single well attested experiment, is sufficient, to establish the principle. Professor Coxe very judiciously cautions us, "against drawing positive conclusions, from negative experiments." He goes on to observe, "we here see all reasoning drawn from them, however plausible, falls to the ground, by this single positive fact"

5th There is a much greater resemblance, between Small pox, & Kine pock, than between Syphilis & Gonorrhoea, or between this last & Sibbens. It is possible, that Frambœsia is a modification of Lues venerea; & there are some reasons, for believing, that this last is an evanescent form of Leprosy.

5th. A vaccine scab, taken from a person labouring under Small Pox, & the vaccine disease at the same time, will produce the former. It is true the disease will be considerably ameliorated, but it will remain sufficiently well defined, to leave no doubt of its nature. This fact was ascertained in Baltimore, during the last summer. Every particle of the variolous matter, was removed from the external surface of the crust, & all other precautions taken, to obviate deception.

The above are the principle arguments, that occur to me at this time. They evidently, in my opinion, preponderate the reasons that have been urged in favour of Dr. Jenner's hypothesis. The origin of the vaccine disease, still remains doubtful, & I am by no means very sanguine, that the opinion I have espoused, is the true one. It seems to me the most probable, of any heretofore advanced, & I shall continue to adhere to it, until Dr. Jenner's if more completely established, or until a better, is substituted.

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Various plans have been suggested, for preserving the virus. As it was by some supposed, that the sensible qualities of the atmosphere, diminished its activity, numerous instruments were devised, to exclude the air & to preserve an uniformity of temperature. I have seen several of them, that seemed to answer the purpose very completely; but as far as I could judge, with very little advantage. It does not appear, that either heat, or moisture, unless excessive, exert any considerable influence upon the Vaccine Matter. It is now either preserved upon glass; or thread is saturated with it. Dr. Rush prefers the point of a lancet; the principle objection to this, is, the facility with which the point of the lancet is oxydated. When glass is used for this purpose, it is necessary to permit the virus to become perfectly dry; if this precaution be neglected, the fermentative process will be induced, which will destroy the activity of the virus. The scab is now generally preferred. It is more economical, & continues to infect a longer time, than when either of the above modes is resorted to.

It is difficult to determine with any degree of precision, the length of time, the virus will continue to infect. The temperature at which it is kept, exerts the most considerable influence upon it. Good matter, will in general, continue to produce the disease, in temperate weather, at the end of six months. Its activity seems to diminish in the ratio of its age. A great number of experiments, would be required to determine this point, with absolute certainty.

Vaccination, has been performed in various ways: the thread was much in vogue, until Mr. Bryce, pointed out the superior efficacy of the scab. A very palpable objection, might be urged against the employment of the thread. The presence of an extraneous body, would frequently irritate the parts to suppurative inflammation; whereby the vaccine disease would be abolished, from the predominance of common inflammation; & pus would be secreted, in lieu of that limpid fluid which is uniformly (present

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The fluid matter is exempt from this objection; & when practicable, is perhaps superior, to any other mode. But the impossibility, of obtaining it at all times is an insuperable impediment, to the general adoption of this practice. Dr. Jenner has termed the 9th day, the sacred barrier; beyond which we shall never venture. Subsequent experience, has shewn the fallacy of this caution. It may be taken with equal propriety, on any day, so long as the matter continues fluid. Dr. Rush has known it to continue fluid for 20 days.

Several years ago, Mr. Bryce recommended the scab. The almost uni= versal adoption of this practice, is a sufficient test of its superiority. The generality of physicians depend upon a puncture. When the armed lancet is used, for this purpose, it should be thrust obliquely under the skin, & suffered to remain, for a short time: if retracted immediately, the chance of communicating the disease, is much diminished. Dr. Rush very properly, enjoins the observance of this precaution. From several experiments, made upon the lepers, it is apparent that our success would be greatly enhanced, by attending to his direction.

I have found it advisable to expose a larger surface, to the action of the virus. To effect this, I usually make two or three parallel incisions, about the 8th of an inch in length, in an oblique direction, near the inser= tion of the deltoid muscle, with the shoulder of a lancet. Previous to this, the external coat of the scab, should be carefully pared off; this is an essential precaution; its omission I am confident, has frequently occasioned a failure. A drop of water, should then, be carefully incorporated, with the matter, & introduced into the incisions.

In females, it may be proper, to insert the matter higher up the arm, that is over the belly of the deltoid. It might be apprehended, that the action of this muscle, would increase the inflammation, very considerably; I have not observed it.

When a lancet is not at hand, a common sewing needle, is a very good substitute. All unnecessary irritation should be carefully avoided. —

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If the operation succeeds, a small red pimple, is generally observable on the 2 or 3 day: it continues to increase gradually, & on the 4th or 5th, a vesicle containing a limpid fluid, makes its appearance: on the 6th day, the central depression; on the 8 or 9th the areola commences, & continues till the 12 or 13th day, at which time it is about the size of a dollar; it now begins to lessen, & finally subsides, about the 14 or 15th day. About the declension of the areola, the pustule begins to dry, & generally on the 17th day, sometimes much earlier, the scab, is perfectly formed. The crust in most instances, falls off spontaneously, about the 20th day, but it may, commonly be detached much sooner.

The pruritus that supervenes about the 9th day is sometimes truly distressing. It is occasionally so considerable, as to require the exertion of great fortitude, to abstain from scratching. The constitutional disease, comes on about the same time, & is characterised by those symptoms, that denote a mild grade of fever. It is increased or diminished by all those causes, that augment or lessen, the local affections.

When the inflammation is at its height, the glands of the axilla, are commonly tumified & tender — or when the matter has been absorbed into the leg, the inguinal glands, are enlarged and painful. This symptom, is by no means uniformly present. I have been unable to detect it, when every other symptom, accorded, exactly, with the description I have just given. Most writers have imputed this affection of the axilla, to the absorption of the vaccine virus; perhaps this opinion is in some instances, well founded; but it certainly does not, exclusively, & in every instance, depend upon the passage of the virus into the circulation.

In a majority of the cases, that have fallen under my notice, it appeared to arise from the intensity, of the inflammation surrounding the pustule. Any considerable irritation, as scratching, or rupturing the pustule will bring it on; it arises from this cause, so frequently

† Hectic Fever was formerly supposed to arise from the absorption of purulent matter. Few practitioners of the present day, entertain opinion.

‡ For a full and very accurate description, I must refer to Dr Practical Observations, page 18 et seq.

‡ The rapidity with which this fluid is secreted, is truly astonishing when effused upon the exterior surface of the pustule, & the adjacent skin, it speedily solidified by evaporation. In this state it has the appearance of imperfect crystallization, & is of the colour of sugar candy. The celerity with which the aqueous humour, is reaccumulated, evacuated, by the operation for extracting the Crystalline lens, is well known.

‡ Dr Physick mentions an appearance somewhat similar in the slough ulcer. While one part of the ulcer was healing, the sloughing continued advance in another part. M.M.S. Lectures.

that it must have been noticed by every physician. I have known
an inflammation & swelling of the glands in the groin, brought on by
an inflammation, of the foot & ankle, induced by a sprain of those
parts. Ulcers of the extremities, are a frequent sources. In like manner,
the application of caustic, to chancres on the penis, have often induced it.
It is scarcely presumable, that the use of this stimulating article, would
so speedily, promote the absorption of the venereal poison. These
facts irrefragibly prove, that the enlargement of these glands, may arise
from other causes, than absorption. But exclusive, of the support, that
may be drawn from analogy, this opinion, quadrates very completely
with experience. In speaking of Cancer, Dr. Dorsey expressly says, that the
tumefaction of the axillary glands, in cancer of the mamma, frequently
depends upon sympathy; & in all the cases of vaccination, that I have
seen, as far as my recollection extends, the violence of this affection, was
proportioned to the intensity of the inflammation. Motion of the arm,
violent exercise, warm weather, local injury &c, were the most frequent
causes of it. — I will not venture to affirm, that it is never produced, by
absorption, but the circumstances I have just mentioned, have firmly
convinced me, that it, in most cases, depends upon sympathy.
The above is the order, in which the symptoms usually succeed each other,
when the disease is perfect; they are, however, greatly diversified, by
various causes. A considerable time sometimes intervenes, between the insertion
of the matter, & the appearance of the disease. Dr. Valentin of Marseilles,
mentions one case, in which a whole year elapsed. A premature inflam-
mation, will sometimes destroy the disease in its germ; or so much
change its monitor appearance, as to obscure very much its nature.
Local injury, as scratching &c acts in two ways - 1st By the inflammation
it excites. 2 By rupturing the cuticle & affording an escape, to the
virus. This injury, when extensive, commonly eventuates in ulceration.
I have seen one part of a pustule filled with a fluid, perfectly pellucid, while
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appearance, is readily explained, by the cellular structure of the pustule. The inflammation has also been so intense, as to raise a number of serous vesicles, in the parts contiguous to the pustule. Is it not possible, that these vesicles, may have been mistaken, for crops of Vaccine pustules? They are obviously the effect of inflammations, & analagous in every respect, to the vesication produced by cantharides.

Causes of failure. I have frequently adverted to the causes of failure: They are numerous, & appear to arise principally.

1st From the employment of spurious matter.

2d From the use of matter, originally genuine, but impaired or rendered inert by keeping.

3d From the incisions, or punctures not penetrating deep enough. This is certainly a rare occurrence; but I think I have witnessed it.

4th Penetrating too deep: whereby blood is effused, that either washes away, or dilutes the matter. Probably failures arise more frequently from this than from any other source.

5th From exciting too much inflammation: By this means our efforts are frequently rendered abortive; in some cases, from our too great solicitude to ensure success. But it much more frequently arises, from performing this simple operation, in a bungling manner, or by using a dull or rusty lancet. Puncturing, which is often carried to excess, frequently occasions it.

6th Old Age. I am not aware that this cause, has been noticed by any writer upon this subject. The disease can seldom be excited after the 50th year. This has been so frequently the case, that I can have no hesitation in ascribing it to this cause.

7th Cutaneous diseases, almost uniformly convert a regular vaccine pustule, into a common suppurating, or ulcerating sore. In some cases, the reverse of this takes place; which will be noticed more particularly hereafter. The prevalence of Herpetic affections, in infancy & childhood, should induce us to pay particular attention to the skin, in these periods of life; in order to remove them, when practicable, previously to vaccination. A few gentle laxatives will, generally have this effect. Calomel &

† See Eclectic Repertory vol 1 p 4 et seq –

either alone, or combined with magnesia appear preferable to any other.

7th. General Disease, as fever, in most cases, prevents the formation of the genuine Vaccine. This is frequently observable, in children, labouring under worms or dentitions.

8th. Sulphur, has been enumerated among its causes by Dr Jenner. This may act by its peculiar determination to the skin, producing an action there, incompatible with the existence of the vaccine. Dr Barton very ingeniously, & rationally, ascribes the inaptitude of persons using this article to eruptive diseases, as the Itch, & not to Sulphur, which in domestic practice, is frequently used for their removal. In confirmation of this opinion, he relates one very painful case.

9th. Exceeding warm weather, diminishes the certainty, of communicating this disease; in consequence, probably, of the perspiration being more abundant, at this, than at any other time: or, it may depend upon the putrefaction, excited by the heat upon the surface. It may likewise arise, from the matter being more liable to deterioration, during the Summer months than in cold, or temperate seasons. Dr Rush has been unable to effect, when the mercury in the Thermometer stood above 90°. The Harmattan wind said to prevent Small Pox. It would doubtless exert a similar effect, upon this disease, and from the same cause.

We sometimes observe an inaptitude in the system to this disease, which cannot be referred, to any of the causes above enumerated. A similar insusceptibility, has been witnessed in Small Pox, & its cause, for a long time eluded discovery. It seems probable that the fœtus in utero, may imbibe the disease from its mother. Several facts might be adduced to show, that this has actually occurred. It might be even extended still farther, & assumed as a fact, that the fœtus may labour under the Variolous disease, in a healthy state of the mother. Dr Jenner mentions several cases of this kind: in one, which he quotes from Dr Mead, a woman was delivered of a dead child, "all over covered with pustules: a manifest sign that it died of the disease, before it came into the world." If these cases be correctly related, it will afford a rational solution of the difficulty, in the Small

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Perhaps other causes may conspire to render our failure more frequent. When these or any other causes have destroyed the pustule, I have deemed it prudent in every instance, to repeat the vaccination. Very little inconvenience is experienced by the patient, from this cautious procedure: if the first operation has ~~vaccinated~~ the system, the inflammation from the second, will disappear on the 4 or 5th days. On the contrary, if the previous attempt has failed, a very important advantage is thereby gained. By this practice many, have unquestionably submitted to a repetition of the operation, without necessity: but when it is considered, that the life of a fellow creature, may be jeopardized, by the omission of this seemingly trifling, but really essential, precaution, I am confident, that no physician will grudge the time & trouble so laudably bestowed.

I am unacquainted with any one, infallible criterion, of the genuineness of this disease. The areola & central depression, taken conjointly are in my opinion, sufficient.

The Small pox is easily distinguished from the Vaccine disease. The principal discriminating marks are as follow. The vaccine pustule, is divided into cells: its margin is elevated & its centre depressed: it is single & independant, papes into a scab, without much pus. The scab, is smooth, hard, semitransparent, & of a dark brown colour. — The Variolous pock, is often surrounded with pustules, that coalesce with it: it papes altogether into pus, & its scab is rough, scaly, friable, & quite opaque; with a light brown colour & its centre somewhat elevated.

They are alike seated between the Epidermis & cutis vera.

It has been proposed to employ vaccination as a remedy, for the removal of other diseases, of a more dangerous, or disagreeable nature. As far as I know, the late Dr. Archer of Maryland, first suggested this practice. He succeeded in several cases of Hooping cough; & Dr. Rush has completely arrested the progress of the same disease, by a similar remedy. It has now, however, fallen into disrepute; probably from its having been employed

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empirically. Dr. Cullen tells us that Pertussis, continued from habit, after the inflammatory stage has been subdued. If vaccination be ever admissible with a view to its curative effect, would not this be the proper time to make the experiment? I should conceive it would. as the Hooping cough is a more powerful disease, than Kine Pock, I should not anticipate much risk, from making the attempt, during its first or inflammatory stage. I think the proposal very feasible; & that if properly managed, it might be productive of considerable advantage in the treatment of disease.

It occurred to me, during the last summer, that perhaps vaccination might be advantageously employed, for the removal of some local disease. I suggested to Dr. Potter of Baltimore, the propriety of using it in chancre. I have since learnt that the same idea, has occurred to a physician of Calcutta. Upon reflection, I am disposed to doubt the practicability of inducing the vaccine disease, in a venereal or cancerous sore. It may perhaps be used with advantage, in milder affections. The ring worm invariably yields to it; & it frequently compells the Itch, to succumb, under its influence — I have thus detailed all the information, I am possessed of, in regard to the Kine Pock; ~~usual~~ I am principally indebted to Dr. Smith of Baltimore for the knowledge I have acquired of it: whose extensive experience with this disease, has enabled him, to collect a number of very important facts. —

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